Surge Arresters

COOPER Power Systems

Service Information

VariSTAR Storm Trapper High Energy MOV Arrester Installation Instructions

S235-16-1

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PRODUCT INFORMATION

Introduction

The Cooper Power Systems VariSTAR Storm Trapper High Energy MOV arrester is designed to provide overvoltage protection at the low-voltage side of distribution transformers. The Storm Trapper High Energy arrester is the industry's first low-voltage distribution class arrester. It has successfully passed all design tests for light duty distribution class arresters per IEEE Std C62.11™ - 1993 standard and is CSA® listed for safety.

⚠ WARNING:

As with any electrical device, precautions must be observed to prevent injury due to electrical shock. Be sure all electricity is shut off before installing an arrester. It is recommended that installation be made only by an authorized technician.

⚠ Read This Manual First

Read and understand the contents of this manual and follow all locally approved procedures and safety practices before installing or operating this equipment

Additional Information

These instructions cannot cover all details or variations in the equipment, procedures, or process described nor provide directions for meeting every possible contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user's purpose, please contact your Cooper Power Systems sales representative.

Acceptance and Initial Inspection

Each Storm Trapper surge arrester is completely assembled, inspected, and tested at the factory. It is in good condition when accepted by the carrier for shipment. Upon receipt of a Storm Trapper surge arrester, inspect it thoroughly for damage and loss of parts incurred during shipment. If damage or loss is discovered, file a claim with the carrier immediately.

Handling and Storage

If the Storm Trapper surge arrester is to be stored for an appreciable time before installation, provide a clean, dry storage area.

Quality Standards

ISO 9001:2008-Certified Quality Management System

SAFETY FOR LIFE

Cooper Power Systems products meet or exceed all applicable industry standards relating to product safety. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Cooper Power Systems employees involved in product design, manufacture, marketing and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high-voltage lines and equipment and support our “Safety For Life” mission.

SAFETY INFORMATION

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians, who are familiar with this equipment should install, operate and service it.

A competent technician has these qualifications:

- *Is thoroughly familiar with these instructions.*
- *Is trained in industry-accepted high- and low-voltage safe operating practices and procedures.*
- *Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.*
- *Is trained in the care and use of protective equipment such as flash clothing, safety glasses, face shield, hard hat, rubber gloves, hotstick, etc.*

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:

⚠ DANGER:

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING:

Indicates a hazardous situation which, if not avoided, could result In death or serious injury.

⚠ CAUTION:

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in equipment damage only.

Safety Instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.

⚠ DANGER:

Hazardous voltage. Contact with high voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment.

⚠ WARNING:

Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage.

⚠ WARNING:

This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply may result in death, severe personal injury and equipment damage.

⚠ WARNING:

Power distribution and transmission equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install or maintain power distribution and transmission equipment can result in death, severe personal injury, and equipment damage.

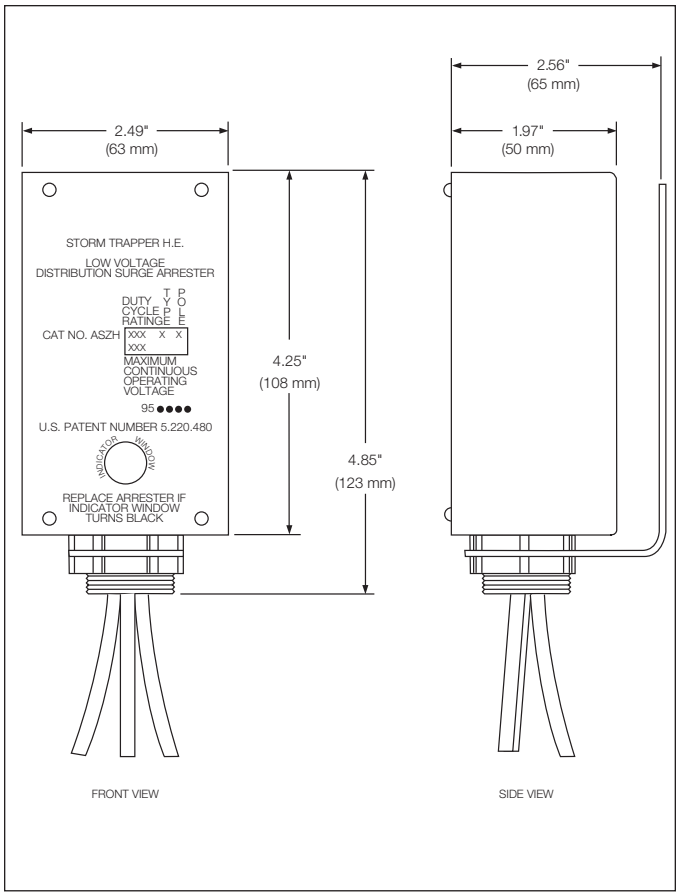


Figure 1.
Metal enclosed VariSTAR Storm Trapper High Energy MOV Arrester with optional mounting bracket.

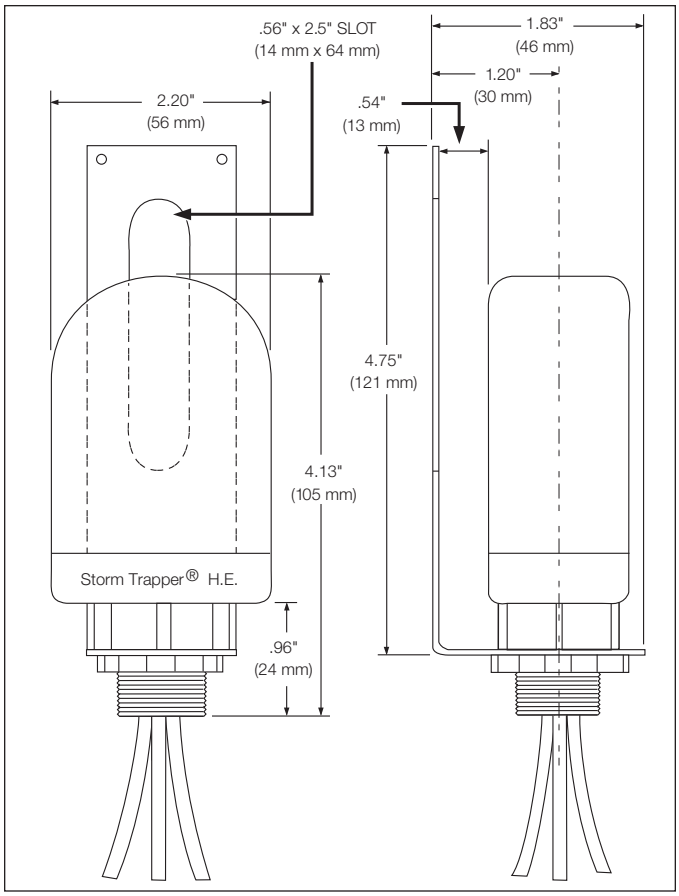


Figure 2.
External mount VariSTAR Storm Trapper High Energy MOV Arrester with optional mounting bracket.

TABLE 1
Application Recommendations

System Configuration		Storm Trapper High Energy Arrester				
Phase/Wiring	Voltage (Volts rms)	Arrester Rating (Volts rms)	MCOV* (Volts rms)	Pole(s) (Phases)	See Wiring Diagram (Figure 3)	Catalog** Number
Single-Phase/Two-Wire	120	480	400	1	1	ASZH480C100
	240	480	400	1	1	ASZH480C100
	480	650	540	1	1	ASZH650C100
Single-Phase/Three-Wire	240/120	480	400	2	2	ASZH480C200
	480/240	480	400	2	2	ASZH480C200
Three-Phase (ungrounded)/ Three-Wire	240	480	400	3	3	ASZH480C300
	480	650	540	3	3	ASZH650C300
Three-Phase (one-phase grounded)/Three-Wire	240	480	400	2	4	ASZH480C200
	480	650	540	2	4	ASZH650C200
Three-Phase (one-phase center-tap grounded)/ Four-Wire	240/120	480	400	3	5	ASZH480C300
	480/240	650	540	3	5	ASZH650C300
Three-Phase/ Four-Wire	208Y/120	480	400	3	6	ASZH480C300
	480Y/277	480	400	3	6	ASZH480C300

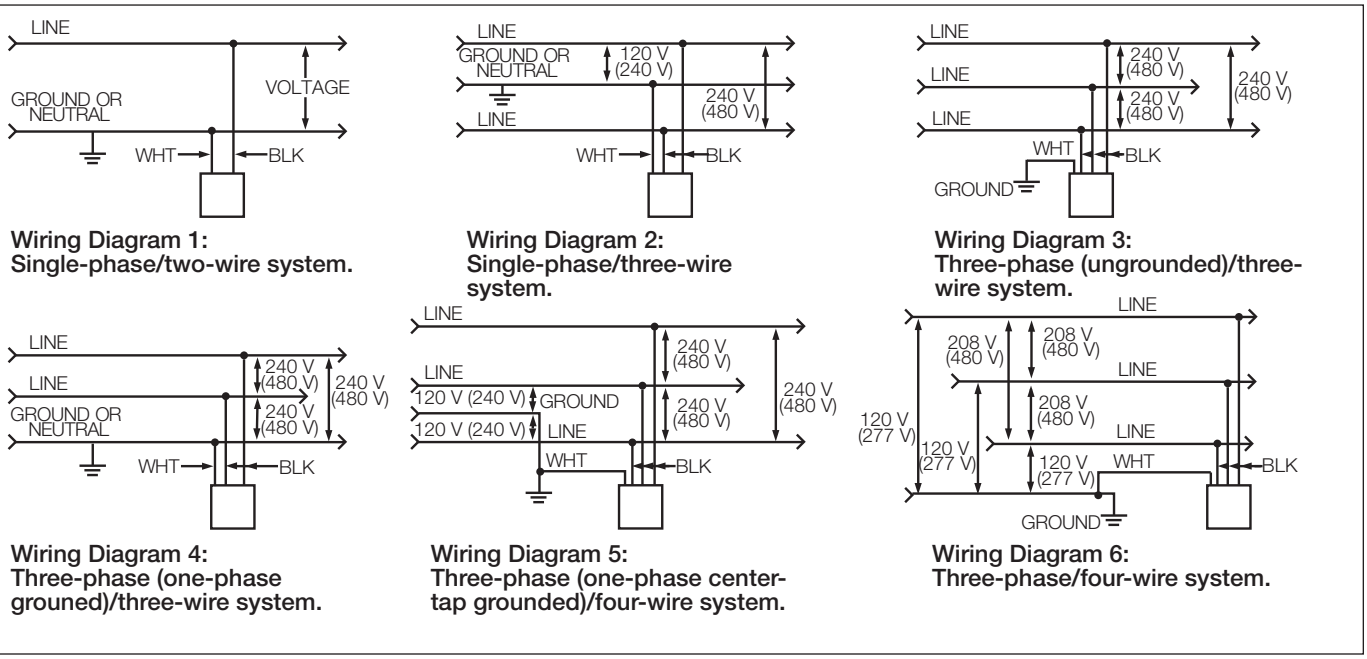
* Maximum continuous operating voltage (MCOV) is the maximum designated rms value of power frequency voltage that may be applied continuously between the terminals of the arrester. Temporary overvoltage capability should not be exceeded during transformer production electrical tests.

** Mounting bracket option available. Change last digit in catalog number to 1 (Example: ASZH480C101).

INSTALLATION PROCEDURE

The Storm Trapper High Energy arrester is moisture proof for indoor and outdoor use. Prior to installing a Storm Trapper High Energy arrester:

1. Consult Table 1 to make certain the arrester is correct for the applied system configuration.
2. Refer to the appropriate wiring diagram in Figure 3 for the proper connections.



Wiring Diagram 1:
Single-phase/two-wire system.

Wiring Diagram 2:
Single-phase/three-wire system.

Wiring Diagram 3:
Three-phase (ungrounded)/three-wire system.

Wiring Diagram 4:
Three-phase (one-phase grouned)/three-wire system.

Wiring Diagram 5:
Three-phase (one-phase center-tap grounded)/four-wire system.

Wiring Diagram 6:
Three-phase/four-wire system.

Figure 3.
Wiring diagrams.

NOTES: Black leads to line: white leads to ground.
Voltage between a white lead and any black lead should not exceed arrester MCOV rating.
Cooper Power Systems recommends that the arrester leads be trimmed to the minimum required length.

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COOPER Power Systems

2300 Badger Drive
Waukesha, WI 53188 USA
www.cooperpower.com